

Proposal # 2001-K-213 (Office Use Only)

A. COVER SHEET

Proposal Title: **Battle Creek Anadromous Salmonid Monitoring Projects**

Applicant Name: **Fish and Wildlife Service**  
**Northern Central Valley Fish and Wildlife Office**

Primary Contact: **Jim Smith**  
Mailing Address: **10950 Tyler Road**  
**Red Bluff, CA 96080**  
Telephone: **(530) 527-3043**  
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E-mail: **Jim\_Smith(ii.fws.gov)**

Amount of funding requested: **\$518,414 first, \$527,739 second, and \$529,999 third year**

State cost: \$ Federal cost: \$

Cost share partners? ~~XXXX~~ Yes N o  
Clear Creek Rotary Screw Trapping (possible CVPIA or CALFED project)

Indicate the Topic for which you are applying (check only one box).

Natural Flow Regimes	Beyond the Riparian Corridor
Nonnative Invasive Species	Local Watershed Stewardship
Channel Dynamics/Sediment Transport	Environmental Education
Flood Management	Special Status Species Surveys & Studies
Shallow Water Tidal/ Marsh Habitat	<input checked="" type="checkbox"/> <b><u>Fishery Monitoring, Assessment &amp; Research</u></b>
Contaminants	Fish Screens

What county or counties is the project located in? **Shasta and Tehama Counties**

What CALFED ecozone is the project located in? **4.4- Battle Creek of the North Sacramento Valley**

Indicate the type of applicant (check only one box):

State agency	<input checked="" type="checkbox"/> <b><u>Federal agency</u></b>
Public/Non-profit joint venture	Non-profit
Local government/district	Tribes
University	Private party
Other:	

Indicate the primary species which the proposal addresses (check all that apply):

San Joaquin and East-side Delta tributaries fall-run chinook salmon

☒ **Winter-run chinook salmon**

☒ **Spring-run chinook salmon**

☒ **Late-fall run chinook salmon**

☒ **Fall-run chinook salmon**

Delta smelt

Longfin smelt

Splittail

☒ **Steelhead trout**

Green sturgeon

Striped bass

White Sturgeon

All chinook species

Waterfowl and Shorebirds

All anadromous salmonids

Migratory birds

American shad

Other listed T/E species:

Indicate the type of project (check only one box):

☒ **Research/Monitoring**

Watershed Planning

Pilot/Demo Project

Education

Full-scale Implementation

Is this a next-phase of an ongoing project? **Yes XXX** No \_\_\_\_\_

Have you received funding from CALFED before? **Yes XXX** No \_\_\_\_\_

"Monitoring adult and juvenile spring and winter chinook salmon and steelhead in **Battle** Creek, California", project number is 98-F1003. California Resources Agency contract number B81836.

Have you received funding from CVPIA before? **Yes XXX** No \_\_\_\_\_

In FY 1998, CVPIA AFRP cost shared with the BOR for the project "Survey and monitor adult winter chinook salmon and spring chinook salmon in Battle Creek". In FY 1998, 1999, and 2000, CVPIA CAMP funded Battle Creek rotary screw trapping.

By signing below, the applicant declares the following:

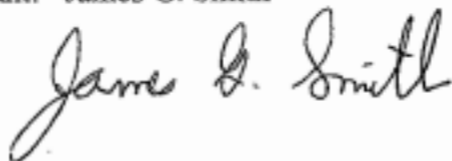
The truthfulness of all representations in their proposal;

The individual signing the form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or organization); and

The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section 2.4) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

Printed name of applicant: James G. Smith

Signature of applicant



## B. EXECUTIVE SUMMARY.

Proposal Title: Battle Creek Anadromous Salmonid Monitoring Projects  
Applicant Name: Fish and Wildlife Service  
Northern Central Valley Fish and Wildlife Office  
Primary Contact: Jim Smith  
Mailing Address: 10950 Tyler Road  
Red Bluff, CA 96080  
Telephone: (530) 527-3043  
Fax: (530) 529-0292  
E-mail: Jim\_Smith@fws.gov  
Amount of funding requested: **\$1,576,152** for 3 years  
Participants and collaborators: Battle Creek Adaptive Management Technical Team

### 1. Project Description And Primary Objectives:

Three proposed Battle Creek salmonid monitoring projects will provide monitoring information for use in adaptive management of the Battle Creek Salmon and Steelhead Restoration Program (Restoration Program): 1) adult fish counting and trapping at the Coleman barrier weir; 2) adult, redd, and carcass (snorkel) surveys; and 3) juvenile fish monitoring with two rotary screw traps (lower Battle Creek and upper Battle Creek). In the Memorandum of Understanding (MOU) for the Restoration Project, the parties agreed that biological and environmental monitoring will include at least 5 elements, four of which are included in the current proposal. The MOU outlined a comprehensive approach to monitoring and assessment which includes 4 elements: Post-Construction Evaluation and Assessment, Facilities Monitoring Plan, Operations and Maintenance Plan and an Adaptive Management Plan (AMP).

Currently the draft AMP addresses 9 different objectives and 11 related hypotheses. The three proposed monitoring activities provide part of the basis for 8 of the 9 objectives. The Battle Creek Adaptive Management Technical Team (AMTT) endorsed the idea of applying for funding for these projects because the monitoring activities are essential for Adaptive Management (AM) of the Restoration Program and it is unlikely that these activities will be funded by other sources next year.

The AMP and Restoration Project focuses on four types of uncertainty:

- 1) Are the limiting factor analysis and limiting life stage model correct? Have all limiting factors been identified and evaluated correctly?
- 2) Will restoration actions function as planned?
- 3) Will the watershed restoration projects as a whole recover Battle Creek populations, or will factors outside the watershed be more limiting?
- 4) How will environmental variation, especially catastrophic events and anthropogenic impacts, effect restoration and species recovery?

Monitoring may show that, given time, salmonids will be able to access target habitats, produce juvenile outmigrants, increase escapement and meet AFRP / CALFED goals. If not, specific AMP responses include 1) increasing minimum stream flows, 2) removal of natural barriers, 3) initiation of radiotelemetry studies, 4) investigation of unforeseen limiting factors, 5) verification of the limiting life stage or IFIM models that underlie the restoration approach, 6) development of improved temperature models, or rule-based plans for adjusting stream flow to meet temperature targets, 7) extension of video and electronic dam fish counts. Monitoring may trigger other potential actions taken outside of the AMP, including 8) changes in operation of Coleman NFH barrier weir and 9) supplementation of winter chinook or other populations in Battle Creek.

## C. PROJECT DESCRIPTION.

### 1. Statement of the Problem

**a. Problem** - CALFED is providing more than \$27 million dollars for the Battle Creek Salmon and Steelhead Restoration Project (Restoration Project). The project will remove 5 hydroelectric dams and conveyances, install new fish screens and ladders on 3 more dams, install tailrace connectors and water bypass facilities, increase minimum instream flows, and improve flow ramping rates, all to benefit anadromous salmonids and the ecosystem processes on which they depend. The Restoration Project was memorialized in a Memorandum of Understanding (MOU) signed by the National Marine Fisheries Service (NMFS), Bureau of Reclamation (BOR), Fish and Wildlife Service (Service), Department of Fish and Game (CDFG) and Pacific Gas and Electric Company (PG&E). PG&E owns and operates the Battle Creek Hydroelectric Project which will be modified by the Restoration Project. In the MOU, the parties agreed that biological and environmental monitoring will include at least 5 elements, four of which are included in the current proposal. The MOU outlined a comprehensive approach to monitoring and assessment which includes 4 elements: Post-Construction Evaluation and Assessment, Facilities Monitoring Plan, Operations and Maintenance Plan and an Adaptive Management Plan.

Adaptive management (AM) is an integral part of post-construction implementation of the Restoration Project. Adaptive management under the MOU is a process that 1) uses monitoring and research to identify and define problems; 2) examines various alternative strategies and actions for meeting measurable biological goals and objectives; and 3) if necessary, makes timely adjustments to strategies and actions. A Water Acquisition Fund (\$3M), and an Adaptive Management Fund (\$3M) are elements of AM which will provide funding for potential changes to Restoration Project actions that result from application of the Adaptive Management Plan (AMP). Currently the Battle AM Policy and Technical teams (AMPT and AMTT, respectively), consisting of representatives of the resource agencies and PG&E, are developing a draft Adaptive Management Plan (AMP). The final AMP will be submitted to FERC as part of the license amendment process for the hydroelectric project.

Currently the AMP addresses 9 different objectives and 11 related hypotheses. The three proposed monitoring activities (barrier dam adult fish counting and trapping, adult distribution (snorkel) surveys and juvenile monitoring by the upper Battle Creek rotary screw trap) provide part of the basis for 8 of the 9 objectives. The AMTT endorsed the idea of applying for funding for these projects because the monitoring activities are essential for AM of the Battle Creek Restoration Project and it is unlikely that these activities will be funded by other sources next year.

In addition, we include in our proposal funds for operating the lower Battle Creek screw trap. The NCVFWO currently operates both traps year-round with funding from CVPIA Comprehensive Assessment and Monitoring Program (CAMP). CAMPs' primary objective, is to monitor juvenile fall chinook production, which is best achieved with the lower Battle Creek trap which is located downstream of Coleman barrier weir. The Restoration Program focuses on Battle Creek upstream of the Coleman barrier weir. Restoration Project objectives can only be met with the upper Battle Creek trap, so the AMTT did not endorse the need for the lower trap. However, our proposal includes the lower trap because the CALFED Comprehensive Monitoring, Assessment and Research Program (CMARP) shares the CAMP high priority objective of running the lower trap. Considerable cost efficiencies can be achieved by combining the screw trapping projects.

The Service performed the three proposed monitoring activities in the following years (USFWS 1996, 1998a, 1998b, 1998c, 2000):

1995 thru 2000	A. barrier dam adult fish counting and trapping
1995 thru 1998	B. adult distribution (snorkel) surveys
1998 thru 2000	C. juvenile monitoring by rotary screw trap

Restoration actions will increase the scope of previous monitoring. Following the removal of dams and

laddering of dams through the Restoration Project, the area covered by the snorkel surveys will double. Restoration Project construction and decommissioning should begin in December 2000. The recent construction of the Coleman NFH ozone treatment plant will allow CNFH to leave the barrier weir open for longer periods without imperiling fish health at the hatchery. Therefore it is also anticipated that time spent trapping and counting at the Coleman Barrier Weir will increase by 50%.

New sources of funding for the Battle Creek snorkel survey and barrier weir trapping and counting must be found. The Service' adult salmonid monitoring on Battle Creek has been primarily related to the Coleman National Fish Hatchery (NFH) winter chinook salmon program. Winter chinook propagated at Coleman NFH were returning to Battle Creek instead of the targeted Sacramento River. Transfer of the winter chinook program to Livingston Stone NFH has resulted in few hatchery winter chinook returning to Battle Creek. Now that winter chinook salmon have not been raised at Coleman NFH for the last four years, evaluating the winter chinook program will no be longer necessary in Battle Creek, and current Hatchery Evaluation funding will be redirected.

The Restoration Project includes a \$1 million monitoring fund to be used over a 10 to 20 year period to respond to urgent needs that cannot wait for time consuming funding cycles or Battle Creek priorities that do not rank high enough for funding from Central Valley-wide sources such as CAMP and CMARP. CAMP has funded Battle Creek RST trapping during the fall run out-migration period from December to June. The Restoration Project focuses on winter and spring chinook which require monitoring year-round. In addition, funding for Battle Creek rotary screw trapping by CAMP has varied from year to year depending upon the overall CVPIA budget.

#### b. Conceptual model -

In the 1800's Battle Creek supported large populations of salmonids, probably the largest from the Sacramento River tributaries below Shasta Dam. These populations have declined drastically to the point where viable self-supporting populations do not exist above the Coleman barrier weir. Most of the in-watershed limiting factors for salmonid populations in Battle Creek arose from hydropower development that occurred around the turn of the century. The extensive system of diversion dams, powerhouses, canals, and trans-basin diversions now owned by PG&E, has limited fish passage, drastically reduced stream flows, increased deleterious water temperatures, entrained juvenile fish, and provided for false attraction of spawners into habitats unable to support spawning. Operation of the Coleman NFH barrier weir has also limited Battle Creek salmonid populations by reducing access to the upper watershed.

The MOU was based in part on analyses reported in the "Battle Creek Salmon and Steelhead Restoration Plan" (Restoration Plan) prepared for the Battle Creek Working Group (BCWG) by Michael Ward and William Kier in 1999. The BCWG organized itself in 1997 to identify and accelerate salmon and steelhead restoration activities in the Battle Creek Watershed. The Restoration Plan is based on extensive studies conducted in the 1980's and 90's by Thomas Payne and Associates for CDFG including an IFIM model (TRPA, 1998).

The Restoration Plan includes an analysis of limiting factors in watershed, a limiting life stage model, temperature modeling, and comparisons with reference streams such as Mill, Deer and Butte Creeks, the McCloud and Little Sacramento rivers. The Restoration Plan presents a model of where the 5 salmonid runs will be distributed within the restored watershed, based on temperature, elevation, stream gradient and many other factors. For the most part, the Restoration Plan uses standard fisheries models, strategies and techniques. The Restoration Project includes standard fisheries solutions such as fish ladders, fish screens, minimum instream flows, barrier modification and ramping rates during flow fluctuations.

Management of habitat will be the focus of the Adaptive Management Plan, with an implicit expectation that fish populations will respond positively to positive changes in the habitat. We expect to measure significant responses from the larger populations of salmonids like steelhead and fall-run chinook salmon. However, we

may not be able to measure statistically significant changes in populations of fish that are at extremely low levels such as winter chinook..

### ***Uncertainties***

The large scope of the Restoration Project contributes to a large number of uncertainties. The Restoration Project focuses on four types of uncertainty:

1) Are the limiting factor analysis and limiting life stage model correct? Have all limiting factors been identified and evaluated correctly? The AMP monitoring plan is designed to detect problems in the analysis that limit the project;

2) Will restoration actions function as planned? Much of the details in the *AMP* focus on *this* category. For instance, do the Instream Flow Incremental Methodology (IFIM) model and the temperature model truly optimize habitat conditions? These issues are addressed in hypotheses 5A and 5B, given below. For another example, the proposed ramping rate for stream flows is based on a rate-setting method developed on other watersheds with different water use patterns. Assumptions of the rate-setting method may not hold *true* in Battle Creek. Hypothesis 6B which is detailed below, addresses this uncertainty.

3) Will the watershed restoration projects as a whole recover Battle Creek populations, or will factors outside the watershed be more limiting? Hypotheses 2, 3, and 4 target this type of uncertainty; and

4) How will environmental variation, especially catastrophic events such fire, drought, and anthropogenic impacts such as sedimentation, tanker spills and deforestation effect restoration? The only MOU monitoring element not addressed by the current proposal focuses on monitoring environmental variation. The current proposal is designed to detect the impacts of the fluctuating environment on salmonid populations.

### **c. Hypotheses being tested -**

The AMP contains 9 objectives with 11 hypotheses listed in Table 1. Detailed discussion of all of the hypotheses is not feasible in the format of the CALFED PSP. All hypotheses will be stated and the hypotheses 1 and 6B will be developed more fully in this proposal. Specific points concerning individual hypotheses will also be described. The draft AMP will be released to the public on July 3,2000. The AMP will contain a thorough discussion of the goals, objectives, hypotheses, uncertainties, and linkages.

Objective 1 (O1): Ensure successful reproduction of adults and production of juvenile out-migrants.

Hypothesis 1 (H1): Juvenile fish production is within the expected range given the number of spawning adult fish and relevant ecological factors.

Hypothesis 1- APPROACH: 1) Establish pre-project baseline estimates of juvenile production using outmigrant traps at the terminus of the project area upstream of CNFH; 2) Estimate adult and jack population sizes using adult counts at fish ladders, carcass counts, snorkel surveys, and/or redd surveys; 3) Estimate juvenile production using an out-migrant trap at the terminus of the project area upstream of CNFH; 4) Estimate juvenile production using outmigrant traps at the terminus of each fork during years and seasons as needed, when adult population levels are sufficient to produce statistically detectable numbers of juvenile outmigrants; 5) Evaluate physical and biological conditions within habitats by reach; 6) Compare juvenile production, by fork and mainstem reach, with production expected from previous spawning populations, in those areas, in light of relevant ecological factors; 7) Compare juvenile production, by fork and mainstem reach, with production observed in reference streams (Mill, Deer and Butte Creeks).

TIMELINE: 1) Separate timelines for each run will be developed; 2) Sample juvenile production when adult population levels are sufficient to produce statistically detectable numbers of outmigrants; 3) Sample juvenile production during all periods of juvenile movement; 4) Sample juvenile production especially during drought.

TRIGGER EVENT: Juvenile production not within expected range (e.g. year-class failure).

RESPONSE: Identify unanticipated limiting factors and work to eliminate those factors.

ASSESSMENT OF RESPONSE: Continue to monitor including new indicators of the unanticipated limiting factors if needed for the life of the hydropower license..

END POINT: 1) No end point for juvenile production monitoring at the terminus of the project area upstream

of CNFH; 2) No end point for estimating adult and jack population sizes; 3) End point for trapping on the forks is after three years of trapping for each of three water-year types that Hypothesis 1 is met; 4) Comparisons of actual versus expected juvenile production, and outmigrant monitoring in the forks are terminated when Fish Population Objective 4 has been reached and juvenile production is within the expected range.

**O 2:** Restore and recover the assemblage of anadromous salmonids that inhabit the stream's cooler reaches during the *dry* season (winter-run, spring-run, steelhead)

**H 2:** Populations of spring-run, winter-run and steelhead *are* at viable population levels.

**O 3:** Restore and recover the assemblage of anadromous salmonids that, as adults, enter the stream in the wet season and spawn upon arrival (fall-run, late-fall-run).

**H 3:** Populations of fall-run and late-fall-run are at levels which are self-sustaining and genetically viable.

**O 4:** Numbers of upstream, migrant salmon and steelhead entering the project area steadily increases to ecological carrying capacity.

**H 4:** Populations of anadromous salmonids are at ecological carrying capacity within the project area.

**O 5:** Maximize usable habitat quantity.

**H 5 A** MOU prescribed instream flows provide at least 95% of maximum usable habitat quantity for critical life stages among species.

**H 5B:** MOU prescribed instream flows provide water temperatures meeting objectives for critical life stages of species at appropriate stream reaches.

**O 6:** Guard against false attraction and harmful fluctuation in thermal and flow regimes due to discharges from the hydroelectric project.

**H 6A:** The South Fork thermal regime, flow regime, and chemical regime with respect to fish homing are not negatively altered by water discharges from the powerhouse tailrace connectors or water conveyance system.

**H 6B:** Variation in flow regimes, following forced or scheduled outages where the available diversion flow **has** been released to the natural stream channel, do not strand fish or isolate them from their habitat. (Note: The MOU established ramping rates for the project).

**APPROACH:** 1) Evidence of fish stranding will be collected during the course of other relevant studies [primarily the proposed snorkel surveys]; 2) Natural flow fluctuations not caused by project operations will be monitored [primarily by the proposed snorkel surveys] to ascertain their effect on stranding and/or isolating anadromous salmonids; 3) Ramping rates and threshold flow levels will be monitored during scheduled outages in 2001 at appropriate agreed upon sites to ascertain their effectiveness to avoid stranding and/or isolating anadromous fish from their preferred habitat; 4) Evidence of fish stranding or isolation caused by project-induced ramping and natural flow fluctuations will be compared.

**TIMELINE:** 1) Evidence of fish stranding will be collected throughout the life of the license; 2) Monitoring of ramping rates will be conducted during scheduled outages in 2001 through 2003; 3) Monitoring of natural flow fluctuations will be conducted from 2000 to 2003; 4) Comparisons of project-induced ramping and natural flow fluctuations will be completed by March 2004.

**TRIGGER EVENT:** Evidence of biologically significant fish stranding or isolation caused by project-induced ramping and natural flow fluctuations.

**RESPONSE:** Conduct a study of ramping effects on anadromous salmonids that determines stranding and isolation using statistically valid techniques and that recommends a more appropriate ramping rate (ramping rates will not be increased to a rate faster than 0.1 feet per hour). New ramping rates would be established using protocols described in the AMP.

**RESPONSE LIMITS:** All instream flow increases for ramping deemed feasible, practical, reasonable, and prudent, and that are within adaptive management budget and FERC amendment, will be implemented. If Water Acquisition Fund or Adaptive Management Fund monies are available, the flow-increase protocol would

be in accordance with the MOU; if funds are not available the flow-increase protocol would be consistent with FERC license amendment requirements.,

END POINT: Ramping rate is finalized based on ramping rate study.

**O 7:** Provide reliable upstream passage of salmon and steelhead adults at North Battle Feeder, Eagle Canyon, and Inskip dams per contemporary engineering criteria and/or standards.

**H 7:** Adult salmon and steelhead passage at fish ladders is not impeded relative to contemporary criteria and/or standards. Objective 7 will rely upon incidental observations made during the snorkel survey to indicate if salmonids are congregating below dams and where the adults are distributed relative to the dams.

**O 8:** Provide reliable downstream passage of juveniles at North Battle Feeder, Eagle Canyon, and Inskip dams per contemporary criteria after the transfer of facilities to Licensee. This objective is not addressed under the current proposal.

**H 8:** Hydraulic parameters at fish screens meet contemporary criteria.

**O 9:** Provide reliable upstream passage of adult salmon and steelhead to their appropriate habitat over natural obstacles within the Restoration Project area while maintaining an appropriate level of spatial separation among the runs.

**H 9:** Natural instream obstacles do not impede upstream migration of adult salmon and steelhead at prescribed flows and normal wet season flow regimes.

**APPROACH:** 1) Inspect obstacles during annual surveys including photographic documentation and description of potential barriers; 2) Compare spawner distribution relative to suspected barriers; 3) Compare observed spawner distribution relative to expected spawner distribution for a particular species; 4) At suspected barriers use TRPA (1991) methodologies and/or any contemporary methodologies, including the consideration of flow regime; and 5) Additional studies (e.g., radio tracking) as needed if no specific barrier is identified. Objective 9 will rely heavily upon incidental observations made during the snorkel survey to indicate if salmonids are congregating below barriers and if barriers and changed over time.

#### d. Adaptive Management -

In general, if the monitoring projects indicate that objectives are not met, limiting factors could be reevaluated, goals and objectives could be revised and/or further studies could be performed to discern how best to achieve the objectives. The Battle Creek Adaptive Management Fund (\$3M) and the Water Acquisition Fund (\$3M) could be used to provide water, alter dams, fish ladders, and fish screens, and improve fish passage at natural barriers. To use the CALFED AM language, we would reassess the problem, revise objectives and target, redefine models, and continue with restoration.

Monitoring may show that, given time, salmonids will be able to access target habitats, produce juvenile outmigrants, increase escapement and meet AFRP / CALFED goals. If not, specific AMP responses include 1) increasing minimum stream flows, 2) removal of natural barriers, 3) initiation of radiotelemetry studies, 4) investigation of unforeseen limiting factors, 5) verification of the limiting life stage or IFIM models that underlie the restoration approach, 6) development of improved temperature models, or rule-based plans for adjusting stream flow to meet temperature targets, 7) extension of video and electronic dam fish counts. Monitoring may trigger other potential actions taken outside of the AMP, including 8) changes in operation of Coleman NFH barrier weir and 9) supplementation of winter chinook or other populations in Battle Creek.

#### e. Educational Objectives -

Information and reports from the monitoring projects will be made locally available to the Battle Creek Watershed Conservancy (BCWC). The BCWC has an educational component including a newsletter to which FWS has contributed extensive articles concerning proposed monitoring. Annual presentations of monitoring results will continue to be presented to the Battle Creek Work Group (BCWG) and the BCWC. Presentations have and will be made to stakeholder groups such as the Spring run Workgroup and local civic organizations



and at festivals such as the Return of the Salmon Festival, held annually in the Battle Creek watershed.

## **2. Proposed Scope of Work**

### **a. Location and/or Geographic Boundaries of the Project -**

The project is located in the Battle Creek watershed of the Upper Sacramento River ecozone (#4.1) Shasta and Tehama Counties (See Figure 1). The Coleman barrier weir is located on Battle Creek at the Coleman National Fish Hatchery. The projects will take place upstream of the barrier weir.

### **b. Approach -**

The following 11 elements will be determined for spring chinook salmon and steelhead in Battle Creek. Similar information on winter chinook salmon will be produced, if winter chinook return to Battle Creek:

1. number of adults returning;
2. timing of adult migration;
3. age, size and gender of returning adults;
4. timing of spawning;
5. location of spawning;
6. weigh and condition of juveniles;
7. timing of juvenile emigration;
8. size of emigrating salmonids;
9. number of juveniles produced;
10. potential limiting factors at various life stages; and,
11. collect tissue samples from adult and juvenile salmonids for genetic analysis.

Number of adults returning —The number of adult spring and winter chinook salmon returning to Battle Creek will be determined by counting adult salmon that ascend the Coleman NFH's barrier dam fish ladder and counting salmon redds and carcasses. Passage at the Coleman NFH barrier dam may be conducted from early-March through early-September depending upon future operation of the barrier weir. All other times of the year, the barrier prevents fish passage and is used to divert salmon into Coleman NFH for propagation purposes. Most passage will be video recorded and the tapes will then be reviewed to count salmon that had passed. Some fish ascending the ladder will be trapped to obtain biological information. The number of fish trapped and then passed above the barrier or relocated will be used in escapement estimates. Estimates will be derived by expanding the total number of salmon counted by the percentage of time that passage was observed.

Five times a week from May through October, snorkel surveys will be conducted on Battle Creek to count chinook salmon redds. A salmon per redd ratio above the Coleman NFH barrier dam will be determined based on estimates from barrier dam counts and spawning ground surveys. The number of salmon returning to Battle Creek which do not pass the barrier dam will be estimated by multiplying the number of redds observed below by the salmon per redd ratio above. The estimate below the barrier dam will likely only occur for winter chinook salmon since difficulties exist in distinguishing spring and fall chinook salmon redds due to lack of temporal isolation. A more thorough explanation of the methodology for adult escapements estimation in Battle Creek can be found in (USFWS 1996). The number of steelhead returning to Battle Creek will be estimated from data gathered while collecting salmonids for propagation at Coleman NFH. Propagation generally occurs from October and continues through February which likely encompasses the complete steelhead migration and spawning in Battle Creek.

Timing of adult migration —Timing and peak adult migration periods for spring and winter chinook salmon will be determined by observing fish passage at the Coleman NFH barrier dam. The estimated number of spring and winter chinook salmon ascending the barrier dam will be plotted weekly for the time period that passage was observed. This will be accomplished by both video monitoring and trapping. The timing of steelhead returning to Battle Creek will be estimated using data gathered while collecting steelhead and chinook salmon for propagation at Coleman NFH.

Age, size and gender of returning adults —Age, size and sex of spring and winter chinook salmon will be collected from live fish trapped at the Coleman NFH barrier dam or from carcasses collected during spawning ground surveys. Scales will be collected from carcasses for ageing, and length (fork length in mm) will also be collected from carcasses and live fish. A length frequency distribution will be plotted, and age-at-length will be

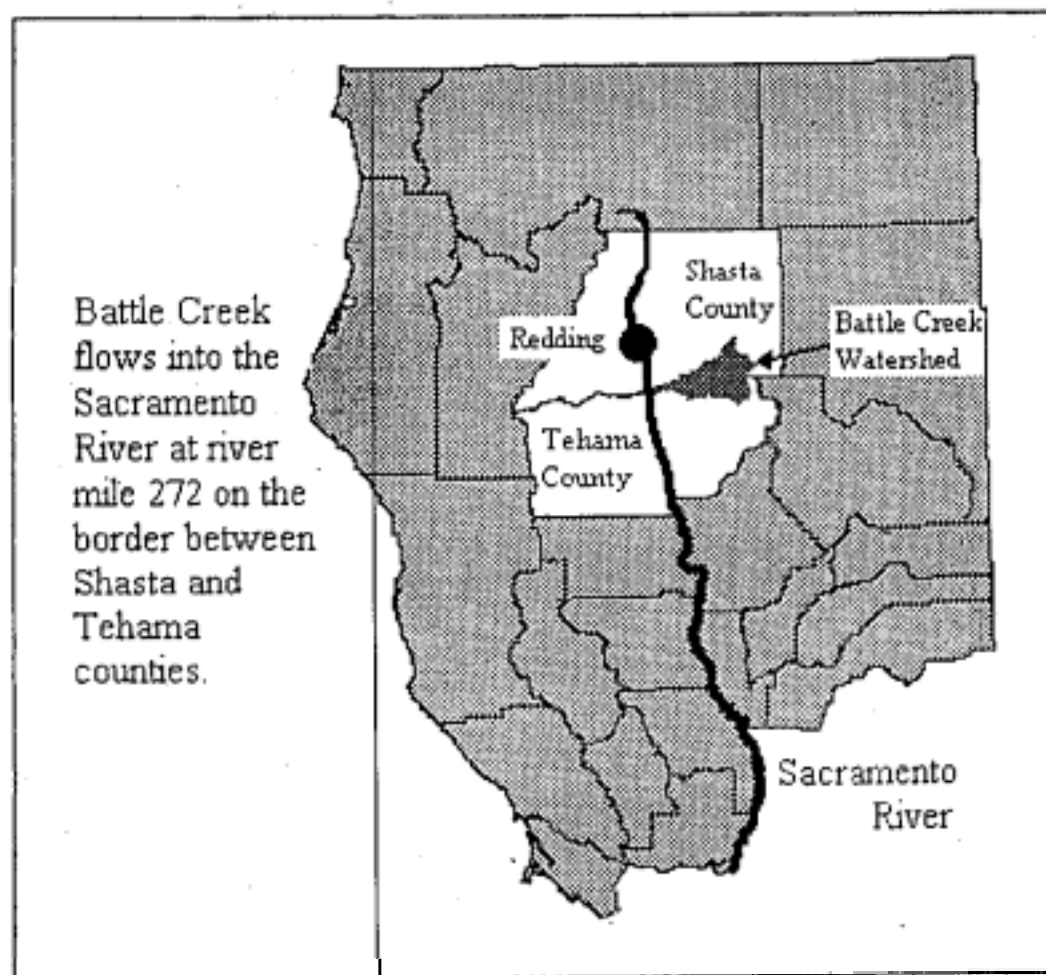


Figure 1. The location of the Battle Creek watershed in relation to the counties of Northern California.

determined by scale reading. Gender information will be gathered from live salmon and carcasses. The age, size and gender of steelhead returning to Battle Creek will be estimated using data gathered while collecting steelhead and chinook salmon for propagation programs at Coleman NFH.

Timing of suawning—Snorkel surveys will be conducted daily on Battle Creek (excluding weekends and holidays) to locate spring and winter chinook salmon holding and spawning locations potentially beginning as early as May and continuing into November. In years when winter chinook counts at the barrier weir are too low, snorkel surveys for spring chinook only will be held, starting in July. The total numbers and location of salmon observed will be recorded. Redds will be marked with flagging or some other visible marker to avoid counting twice. Timing and peak spawning will be determined by redd counts.

Timing of emigrating juveniles—A 5-foot diameter rotary screw trap will be fished daily at a location just upstream of the Coleman NFH barrier dam. A location above the barrier dam should eliminate capturing steelhead, and fall and late-fall chinook salmon juveniles released from Coleman NFH. Trapping will occur year round. Captured fish will be identified to species, enumerated, and measured (fork length in mm). A length frequency distribution will be determined as well as a **fry** to yearling emigration ratio. The timing and peak emigration of **fry** and yearlings will also be determined.

Size of emigrating salmonids—A 5-foot diameter rotary screw trap will be fished daily at a location just upstream of the Coleman NFH barrier dam. A location above the barrier dam should eliminate capturing steelhead, and fall and late-fall chinook salmon juveniles released from Coleman NFH. Trapping will occur year round. Captured fish will be identified to species, enumerated, measured (fork length in mm) and a subsample will be weighed (g). From these data a length frequency distribution will be generated and a condition factor will be determined.

Number of juveniles aroduced—An estimate of the number of juveniles produced will be determined using methodology as described in CAMP's screw trapping protocol (CVPIA **1997**). This methodology will ensure consistency with other rotary screw trap sampling sites throughout the North Sacramento Valley Ecological Zone. The bi-weekly efficiency studies and daily year-round trapping should provide for sound estimates of production. Juvenile production estimates will provide information on the influence of restoration actions.

Identification of aotential limiting factors—Potential limiting factors will be identified while collecting data to meet other objectives. Personnel snorkeling will be able to identify obvious stressors and identify immediate changes to the environment. Fish counts for both juvenile and adult production will provided evidence if some life stage experience survival rates different than normal.

Tissue collection for genetic analysis—Tissue samples will be collected from adult carcasses during stream surveys, live adults from trapping operations and from juveniles collected by rotary screw-trap, electro-fishing and beach seining. A hole punch will be used to obtain 3 small pieces of tissue (primarily fin) from adult salmon. Samples will be stored in a small vial containing tris - glycine buffer. Juveniles will be sampled by clipping a small piece ( $<1 \text{ mm}^2$ ) of the caudal fin. The sample will also be preserved in a vial containing tris - glycine buffer and archived at the Northern Central Valley Fish and Wildlife Office (NCVFWO). Collection of tissue samples from 400 juvenile will be spread throughout the entire year. Sampling will be proportional to the number of juveniles collected at the rotary screw trap. Tissue samples from both adult and juveniles will be forwarded to the University of California's Bodega Marine Laboratory and CDFG (Sacramento) tissue archive for eventual genetic analysis. A sample will also be archived at the NCVFWO, Red Bluff, California. These samples will be used in continuing projects to discriminate between runs of chinook salmon.

c. Monitoring and Assessment Plans - The Battle Creek Anadromous Salmonid Monitoring Projects are monitoring projects for which quality assurance program plans will be completed following funding.

d. Data Handling and Storage - Certified raw data and reports generated under this objective will be updated to appropriate agency and publically accessible/locally (BCWC) endorsed and maintained information systems using database standards consistent with CMARP, CAMP, and EPA. The NCVFWO is and has been using database standards associated with IEP for rotary screw trapping for years.

e. Expected Products/Outcomes -

Monitoring may show that, given time, salmonids will be able to access target habitats, produce juvenile outmigrants, increase escapement and meet AFRP / CALFED production goals. The time frame may be 5 to 10 years for fall chinook or steelhead, or 20 to 30 years for spring and winter chinook.

In the AMP, responses to monitoring triggers are outlined that include: 1) increasing minimum stream flows; 2) removal of natural barriers; 3) initiation of radiotelemetry studies; 4) investigation of unforeseen limiting factors; 5) verification of the limiting life stage or Instream Flow Incremental Methodology (IFIM) models that underlie to restoration approach; 6) development of improved water temperatures models, or rule-based plans for adjusting stream flow to meet temperature targets; and 7) resource agencies' continuation of video and electronic dam counts after they are performed by PGE for 3 years. Other potential AM actions based on the proposed monitoring, taken outside of the AMP, may include 1) changes in operation of Coleman NFH barrier weir; and 2) supplementation of winter chinook or other populations in Battle Creek.

f. Work Schedule - See Table 1. The three projects are separable. An annual adaptive management report will summarize all data collected under these monitoring and assessment approaches and will present analyses required herein.

Table 1.--Activity description, starting and ending date of spring and winter chinook salmon monitoring on Battle Creek beginning in January 2001 and continuing yearly thereafter.

Activity	Start Date	End Date	Deliverable
Coleman NFH barrier weir trapping and counts	Late - February	Early - September	Quarterly and annual report
Snorkel surveys	Early - May	Early - November	Quarterly and annual report
Rotary Screw Trap- Juvenile monitoring	Start of January	End of December	Quarterly and annual report

g. Feasibility -

The NCVFWO, in performing the proposed projects in the past, has demonstrated that the approach is both feasible and appropriate to the proposed work. The proposed staffing level for the project optimizes our ability to deal with the contingencies of natural or operational conditions. Our ongoing environmental compliance and permitting efforts will meet our needs as they have fulfilled them in the past.

Scientific collecting permit from CDFG and an ESA Section 10 incidental take permit are both necessary for the proposed projects. The NCVFWO has obtained both permits for these activities in the past. Prior to the recent Federal listing of spring chinook, the NCVFWO undertook the processes for updating these permits to include winter and spring chinook and steelhead. In the course of this process of determining the impact of our activities on listed species, we are also re-examining our impacts upon fall and late-fall chinook, in order to minimize our impact on all anadromous salmonids.

In the past, we obtained written permission from all private landowners for access to Battle Creek. The proposed project will extend our surveys upstream of what were once impassable barriers. In these new areas we will need to locate access points and contact landowners before deciding upon final access locations. The NCVFWO will obtain written permission for access from watershed property owners after specific field locations have been identified.

## **D. APPLICABILITY TO CALFED ERP GOALS AND IMPLEMENTATION PLAN AND CVPIA PRIORITIES.**

### **1. ERP Goals and CVPIA Priorities.**

The Monitoring Projects will provide critical management information for CALFED Goal 1- At Risk Species and CVPIA priority species: Winter-run, Spring-run, Fall-run and Late-fall-run chinook salmon and Steelhead trout. The information relates to all freshwater life stages, and habitats. Stressors addressed by the AMP include water diversions, dams, reservoirs, weirs and other structures, and land use.

The Restoration Project attempts to restore natural populations and natural functions such as fish passage, and natural stream flows to the watershed. The proposed monitoring verifies that the actions achieve their objectives, or guides further management towards the objectives. The Restoration Project, AMP and the proposed monitoring embody partnerships, local involvement, public support, adaptive management, and flexibility. Most of the restoration actions are based on standard fisheries models, strategies and techniques, the evaluation of which should inform other CALFED restoration activities.

### **2. Relationship to Other Ecosystem Restoration Projects.**

The proposed monitoring projects are essential to the Adaptive Management concepts of the \$52 million Battle Creek Salmon and Steelhead Restoration Project that is being funded largely by CALFED. The Coleman National Fish Hatchery has been undergoing improvements funded through the CVPIA and the BOR, including an Ozone treatment plant that will provide the hatchery with a clean water supply and allow anadromous salmonids better access to habitats upstream of the hatchery. Funds are also being solicited from CALFED to provide fish screens for the CNFH water supply. The Coleman NFH Barrier Weir project funded by CALFED may provide improved infrastructure for barrier weir monitoring. The fisheries agencies may begin a winter chinook supplementation program for Battle Creek. The proposed monitoring would be able to form the monitoring basis for adaptive management of the supplementation program.

### **3. Requests for Next-Phase Funding.**

This proposal could be viewed as next phase' funding for **four** previously funded projects:

- 1) CALFED Battle Creek Salmon and Steelhead Restoration Program, the MOU of which mandates the proposed studies and provided \$1 million for monitoring. Ten years of the monitoring is projected to cost \$5,000,000. The cost of other monitoring components outlined in the MOU and the AMP will cost at least an additional \$1 million;
- 2) CALFED FY 1999 "Monitoring adult and juvenile spring and winter chinook salmon and steelhead in Battle Creek, California", project number 98-F1003. CALFED provided \$150,000 for two of the three elements proposed herein.
- 3) Snorkel survey are the next phase of the CVPIA AFRP FY 1998 and FY 1999 projects "Survey and monitor adult winter chinook salmon and spring chinook salmon in Battle Creek".
- 4) The rotary screw trapping is the next phase of the ongoing CAMP effort that began sampling in September 1998.

### **4. Previous Recipients of CALFED or CVPIA funding.**

- 1) In FY 1999, CALFED funded \$150,000 for two of the three elements proposed herein. The Service was awarded \$150,000 in State CALFED funds from the May 1998 PSP (FY1999) for "Monitoring adult and juvenile spring and winter chinook salmon and steelhead in Battle Creek, California", project number is 98-F1003. Contracting difficulties due to conflicting State and Federal regulations have prevented the

Service from beginning work on the State CALFED contracts. The contracting difficulties are nearing resolution and the Service hopes to use the funds in FY 2000.

2) In FY 1998, CVPIA *AFRP* cost shared \$40,000 (50%) with the BOR for the project "Survey and monitor adult winter chinook salmon and spring chinook salmon in Battle Creek". *AFRP* also provided funds for the project in FY 1999.

3) CVPIA CAMP funded the Battle Creek rotary screw trapping effort in FY 1998, 1999, and 2000. The project is ongoing, but subject to the uncertainties of the year to year funding and reduced CAMP budgets.

## **5. System-Wide Ecosystem Benefits.**

### **E. QUALIFICATIONS.**

The U.S. Fish and Wildlife Service's NCVFWO has been conducting surveys on Battle Creek for adult and juvenile chinook salmon and steelhead since 1995. The NCVFWO has been extensively involved with monitoring chinook salmon in the Northern Sacramento River since 1978. The Service has a strong interest in Battle Creek as it has operated the Coleman National Fish Hatchery located in the Battle Creek watershed since 1942.

James G. Smith is the project leader of the NCVFWO and is serving as the FWS representative to the BC AMPT. Jim received a Bachelor of Science Degree from Humboldt State University in 1975. He has worked for the FWS for 21 years and has been involved with numerous fishery studies in the upper Sacramento River (investigations at RBDD, monitoring juvenile outmigrants, hatchery evaluation of CNFH, Battle Creek restoration, and mainstem spawning gravel evaluations). Jim works on a daily basis with numerous Federal, State and private entities developing actions and programs for restoring, conserving and enhancing anadromous salmonids in the upper Sacramento River.

Matt Brown is the FWS representative to the BC AMTT. Matt is a Fishery Biologist in the NCVFWO. He received a Bachelor of Arts Degree in Biology from the University of California at Santa Cruz in 1986 and a Master of Science Degree in Zoology from Arizona State University in 1990. He worked as a non-game fish biologist for the Arizona Game and Fish Department from 1990-1, and as a fishery biologist for the FWS on threatened and endangered fish in New Mexico from 1991-3. Matt began work for the chinook salmon and steelhead at the NCVFWO in January, 1994. His current work focuses on habitat restoration and monitoring under CVPIA, and evaluating the impacts of water development projects. Recently he has worked on the Clear Creek Fish Restoration Program, the Battle Creek Adaptive Management Plan, and Anderson-Cottonwood Irrigation District Fish Passage Improvement Project.

Phil Gaines is the supervisor for the NCVFWO rotary screw trap monitoring programs on Battle Creek and Clear Creek. Phil received a B.S. degree in Zoology in 1993 and an M.S. degree in 1997 from the University of Oklahoma. Since 1998, he has assisted on evaluations of the in-river impacts of the Red Bluff Research Pumping Plant on down stream migrating juvenile chinook salmon. Additionally, he has consulted on experimental design and data analysis for projects including evaluations of Coleman National Fish Hatchery, predator abundance evaluations, telemetry and rotary-screw trap efficiency studies.

## **F. COST**

### **1. Budget.**

The budget is summarized in Table 2 and salaries and benefits are detailed in Table 3. Costs are adjusted 4% annually for inflation. The FWS overhead rate for CALFED projects is 3%, not to exceed \$300,000 for each agreement. Regional administrative costs equal 2% and California Nevada Operations Office costs equal 1% of the overall 3% overhead. The Service's National indirect costs have been waived for CALFED agreements.

Supplies (with first year unit costs; costs thereafter are adjusted 4% for inflation) include: fish anesthetic (\$800), chemical staining agent (\$700), photonic tagging solution (\$2,000), cell phones/pagers (\$500), and steel cable, safety lines and etc. (\$1000). Equipment costs include a replacement rotary screw trap (\$15,000, in year one), a replacement 4-wheel drive full-size truck (\$20,000 in year one) two PC computers (\$2,500; one in year one for the snorkel survey task and one in year three for the rotary screw trap task), and additional office space (\$10,000 for the rotary screw trap task).

The three tasks are can be funded separately for the amounts shown in Table 2. The lower screw trap could be removed from the proposal, reducing the first year cost of the rotary screw trap task from \$314,089 to approximately \$250,000. In addition, the "Clear Creek juvenile salmonid monitoring project" rotary screw trap proposal that is also being submitted to CALFED, could be funded along with the current proposal for an additional \$105,000. Finally, operation of two traps, one on Clear Creek and the upper Battle Creek trap, could be accomplished for \$355,000.

### **2. Cost-Sharing.**

The FWS NCVFWO tributary rotary screw trapping program will also operate a screw trap on Clear Creek. Operation of three traps produces considerable cost efficiencies because although a trap should be serviced twice a day, it only takes 2 to 3 hours a shift to service one trap. Employing two shifts per day for the 5 hours of work is less cost effective. Employing the same two shifts for 15 hours of work is more effective. Therefore, servicing three traps optimizes the effectiveness of the program. The three traps might be funded by three different sources (CVPIA Clear Creek Program, CVPIA CAMP and CALFED) with each funding agency sharing the cost of one crew. Unfortunately, if funding for one of the other traps fails to come through, then the cost for the remaining traps increases.

## **G. LOCAL INVOLVEMENT**

The FWS NCVFWO has been extensively involved with the development of the Battle Creek Restoration Project. This has included working with the Battle Creek Watershed Conservancy (BCWC) and funding development of the BCWC watershed strategy. More recently, the FWS provided the BCWC articles and pictures for their newsletter, concerning the nature of the adaptive management and monitoring that is being planned, private landowner rights and landowners concerns such as the extent that biological monitoring may lead to regulatory agency intrusion into landowner rights. Announcements indicating the FWS intention to submit this proposal were made at meetings of the BCWC and the Battle Creek Work Group. In the past the FWS has received written permission from the Battle Creek landowners for monitoring access. Project objectives and descriptions were provided to landowners in both verbal and written form.

**Table 2. Summary Annual and Total Budgets- Battle Creek Anadromous Salmonid Monitoring Projects.**

Year	Task	Subject to Overhead					Overhead (3%)	Total Cost
		Salary and Benefits	Training, Travel and Per Diem	Vehicle Gas and Mileage, Supplies & Expendables	Equipment including Vehicle and Computer	Service Contracts		
Year 1	Trapping and Counting	\$46,115		\$1,000		\$0	\$1,413	\$48,528
	Snorkel Survey	\$139,159	\$1,600	\$8,000	\$2,500	\$0	\$4,538	\$155,797
	Rotary Screw trapping	\$269,791	\$2,400	\$7,750	\$25,000	\$0	\$9,148	\$314,089
Total Cost Year 1		\$455,065	\$4,000	\$16,750	\$27,500	\$0	\$15,099	\$518,414
Year 2	Trapping and Counting	\$47,960		\$1,040		\$0	\$1,470	\$50,470
	Snorkel Survey	\$144,726	\$1,500	\$7,000		\$0	\$4,597	\$157,822
	Rotary Screw trapping	\$280,582	\$1,500	\$8,060	\$20,000	\$0	\$9,304	\$319,446
Total Cost Year 2		\$473,268	\$3,000	\$16,100	\$20,000	\$0	\$15,371	\$527,739
Year 3	Trapping and Counting	\$49,878	\$0	\$1,082		\$0	\$1,529	\$52,488
	Snorkel Survey	\$150,514	\$1,560	\$7,280		\$0	\$4,781	\$164,135
	Rotary Screw trapping	\$291,806	\$1,560	\$8,382	\$2,500	\$0	\$9,127	\$313,376
Total Cost Year 3		\$492,198	\$3,120	\$16,744	\$2,500	\$0	\$15,437	\$529,999
Total Project Cost		\$1,420,531	\$10,120	\$49,594	\$50,000	\$0	\$45,907	\$1,576,152



Table 3- Battle Creek Anadromous Salmonids Monitoring Projects  
Positions are Fishery Biologists unless noted

**YEAR ONE**

Task one	Level	Salary	Benefits	Total	FTE's	TOTAL
Barrier Weir	GS-5	23,732	1,827	25,559	0.667	17,039
	GS-5	24,522	6,081	30,604		
	GS-7	30,374	7,533	37,907	0.333	12,636
	GS-9	38,355	10,548	48,903	0.250	12,226
	GS-11	46,408	12,762	59,170		
	* Other	34,255	7,887	42,142	0.100	4,214
					1.350	46,115
Task Two	Level	Salary	Benefits	Total	FTE's	TOTAL
Snorkel Surveys	GS-5	23,732	1,827	25,559		
	GS-5	24,522	6,081	30,604	1.667	51,006
	GS-7	30,374	7,533	37,907	0.667	25,271
	GS-9	38,355	10,548	48,903	0.250	12,226
	GS-11	46,408	12,762	59,170	0.500	29,585
	*Other	34,255	7,887	42,142	0.500	21,071
					3.583	139,159
Task Three	Level	Salary	Benefits	Total	FTE's	TOTAL
Rotary Screw Trap	GS-5	23,732	1,827	25,559		
	GS-5	24,522	6,081	30,604	3.333	102,012
	GS-7	30,374	7,533	37,907	2.000	75,814
	GS-9	38,355	10,548	48,903	0.500	24,451
	GS-11	46,408	12,762	59,170	0.500	29,585
	* Other	34,255	7,887	42,142	0.900	37,928
					7.233	269,791

Table 3(cont)- Battle Creek Monitoring Projects

**YEAR TWO**

Task one	Level	Salary	Benefits	Total	FTFs	TOTAL
Barrier Weir	GS-5	24,681	1,900	26,581	0.667	17,721
	GS-5	25,503	6,325	31,828		
	GS-7	31,589	7,834	39,423	0.333	13,141
	GS-9	39,889	10,970	50,859	0.250	12,715
	GS-11	48,264	13,273	61,537		
	* Other	35,625	8,203	43,828	0.100	4,383
					1.350	47,960
Task Two	Level	Salary	Benefits	Total	FTE's	TOTAL
Snorkel Surveys	GS-5	24,681	1,900	26,581		
	GS-5	25,503	6,325	31,828	1.667	53,046
	GS-7	31,589	7,834	39,423	0.667	26,282
	GS-9	39,889	10,970	50,859	0.250	12,715
	GS-11	48,264	13,273	61,537	0.500	30,768
	*Other	35,625	8,203	43,828	0.500	21,914
					3.583	144,726
Task Three	Level	Salary	Benefits	Total	FTE's	TOTAL
Rotary Screw Trap	GS-5	24,681	1,900	26,581		
	GS-5	25,503	6,325	31,828	3.333	106,093
	GS-7	31,589	7,834	39,423	2.000	78,847
	GS-9	39,889	10,970	50,859	0.500	25,429
	GS-11	48,264	13,273	61,537	0.500	30,768
	* Other	35,625	8,203	43,828	0.900	39,445
					7.233	280,582

\* Other positions- administrative officer, office automation clerk, maintenance worker, etc.

Table 3 (cont.)- Battle Creek Monitoring Projects  
Positions are Fishery Biologists unless noted  
YEAR THREE

Task one	Level	Salary	Benefits	Total	FTFs	TOTAL
Barrier Weir	GS-5	25,668	1,976	27,645	0.667	18,430
	GS-5	26,523	6,578	33,101		
	GS-7	32,853	8,147	41,000	0.333	13,667
	GS-9	41,485	11,408	52,893	0.250	13,223
	GS-11	50,195	13,804	63,998		
	* Other	37,050	8,531	45,581	0.100	4,558
					1.350	49,878
Task Two	Level	Salary	Benefits	Total	FTE's	TOTAL
Snorkel Surveys	GS-5	25,668	1,976	27,645		
	GS-5	26,523	6,578	33,101	1.667	55,168
	GS-7	32,853	8,147	41,000	0.667	27,334
	GS-9	41,485	11,408	52,893	0.250	13,223
	GS-11	50,195	13,804	63,998	0.500	31,999
	* Other	37,050	8,531	45,581	0.500	22,791
					3.583	150,515
Task Three	Level	Salary	Benefits	Total	FTE's	TOTAL
Rotary Screw Trap	GS-5	25,668	1,976	27,645		
	GS-5	26,523	6,578	33,101	3.333	110,336
	GS-7	32,853	8,147	41,000	2.000	82,001
	GS-9	41,485	11,408	52,893	0.500	26,447
	GS-11	50,195	13,804	63,998	0.500	31,999
	* Other	37,050	8,531	45,581	0.900	41,023
					7.233	291,806

\* Other positions= administrative officer, office automation clerk, maintenance worker, etc.

## **H. COMPLIANCE WITH STANDARD TERMS AND CONDITIONS**

The Fish and Wildlife Service (Service) cannot agree to a standard clause requested for State funded projects. Attachment D, Terms and Conditions for State Proposition 204 Funds, Section 3, states

"Performance Retention: Disbursements shall be made on the basis of costs incurred to date, less ten percent of the total invoice amount. Disbursement of the ten percent retention shall be made either: (1) upon the Grantee's satisfactory completion of a discrete project task (ten percent retention for task will be reimbursed); or (2) upon completion of the project and Grantee's compliance with project closure requirements specified by CALFED (ten percent retention for entire project will be disbursed)":

The Services's authorization to enter into agreements with non Federal entities was changed in FY 2000. Our FY2000 Appropriations bill authorizes the Service to enter into contracts with State agencies when advance payment to the Service is not possible. In accordance with the requirements imposed by Congress in the FY2000 Appropriations bill and report language, the Services Director must approve a project when advance payment is not possible and certify that payments will be made in full by the State within 90 days after the Service issues an invoice.

Specifically, the 10% retention clause cannot allow timely payments for the following reasons:

In our Federal Financial System (FFS) accounting program, a periodic invoice (either quarterly or monthly depending on the terms of the contract) is automatically issued from our finance center based on actual expenditures of the Service on a project. Invoices include a payment due date on the invoice and when payment is not received in full by that due date, the system automatically shows the unpaid balance as delinquent. Depending on how delinquent the payment is, interest, penalty and administrative charges may also accrue. With 10% retention withheld on each invoice, the 10% retention amount then causes applicable invoice record in FFS to be partly delinquent and remain delinquent until the project or individual tasks identified in the contract are completed and the retention is released.

The Service's Finance Center must report to the Department of Treasury if the Service is owed funds by any entity. Therefore, when accounts remain delinquent due to the 10% retention of payments owed the Service, that delinquency continues to be reported to Treasury.

We have asked the States Deputy Attorney General (see attached letter) to provide clarifying guidance to the Department of Water Resources that is general in scope, which can also be applied to contracts related to the CALFED program. The Service has previously entered into agreements with the State of California that do not contain the 10% retention clause.

Our offices will continue to work with the State closely on State funded projects. If the State is not satisfied with the work performed by the Service, the State project manager should contact the Service's project manager to correct the performance problem. If needed, upon notification interim billings can be canceled until the State is satisfied with the Services performance.

We can comply with all other State and Federal standard clauses.

## **I. LITERATURE CITED**

CVPIA. 1997. CVPIA comprehensive assessment and monitoring program standard protocol for rotary screw trap sampling. Central Valley Fish and Wildlife Restoration Program Office, Sacramento, CA.

TRPA (Thomas R. Payne and Associates). 1991. **Draft.** Anadromous Fish Migration Barrier Survey of Battle Creek, Shasta and Tehama Counties. Prepared for California Department of Fish and Game, Redding.

TRPA (Thomas R. Payne and Associates). 1998. A 1989 instream flow study: 1 of 8 components. Prepared for California Department of Fish and Game, Redding.

USFWS (U.S. Fish and Wildlife Service). 1996 Escapement of hatchery-origin winter chinook salmon to the Sacramento River in 1995, with notes on spring chinook salmon in Battle Creek. USFWS Report. U. S. Fish and Wildlife Service, Northern Central Valley Fish and Wildlife Office, Red Bluff CA.

USFWS (U.S. Fish and Wildlife Service). 1998a. **Draft.** Escapement of unclipped (spring) chinook salmon to Battle Creek, California from March through October 1996. USFWS Report. U. S. Fish and Wildlife Service, Northern Central Valley Fish and Wildlife Office, Red Bluff CA.

USFWS (U.S. Fish and Wildlife Service). 1998b. **Draft.** Escapement of unclipped (spring) chinook salmon to Battle Creek, California from March through October 1997. USFWS Report. U. S. Fish and Wildlife Service, Northern Central Valley Fish and Wildlife Office, Red Bluff CA.

USFWS (U.S. Fish and Wildlife Service). 1998c. **Draft.** Evaluation of the Sacramento River winter chinook salmon propagation program in 1996. USFWS Report. U. S. Fish and Wildlife Service, Northern Central Valley Fish and Wildlife Office, Red Bluff CA.

USFWS (U.S. Fish and Wildlife Service). 2000. **Draft.** Evaluation of the Sacramento River winter chinook salmon propagation program in 1997. USFWS Report. U. S. Fish and Wildlife Service, Northern Central Valley Fish and Wildlife Office, Red Bluff CA.

## ENVIRONMENTAL COMPLIANCE CHECKLIST

All applicants must fill out this Environmental Compliance Checklist. Applications must contain answers to the following questions to be responsive and to be considered for funding. *Failure to answer these questions and include them with the application will result in the application being considered non-responsive and not considered for funding.*

1. Do any of the actions included in the proposal require compliance with either the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), or both? **YES**
2. If you answered yes to # 1, identify the lead governmental agency for CEQA/NEPA compliance. **Fish and Wildlife Service.**
3. If you answered no to # 1, explain why CEQA/NEPA compliance is not required for the actions in the proposal. **NA see # 1.**
4. If CEQA/NEPA compliance is required, describe how the project will comply with either or both of these laws. Describe where the project is in the compliance process and the expected date of completion. **The type of proposed monitoring projects are categorically excluded in the Fish and Wildlife Service Departmental Manual at 516 DM 6 Appendix 1.4 Categorical Exclusions Section B. Resource Management: (1) Research, inventory, and information collection activities directly related to the conservation of fish and wildlife resources.**
5. Will the applicant require access across public or private property that the applicant does not own to accomplish the activities in the proposal? If yes, the applicant must attach written permission for access from the relevant property owner(s). Failure to include written permission for access may result in disqualification of the proposal during the review process. Research and monitoring field projects for which specific field locations have not been identified will be required to provide access needs and permission for access with 30 days of notification of approval. **Yes, we will require access across property that the FWS does not own. We will obtain written permission for access from the property owners after specific field locations have been identified. In the past, we obtained written Demission from all private landowners for access.**
6. Please indicate what permits or other approvals may be required for the activities contained in your proposal. Check all boxes that apply.

### LOCAL

Conditional use permit \_\_\_\_  
Variance \_\_\_\_  
Subdivision Map Act approval \_\_\_\_  
Grading permit \_\_\_\_  
General plan amendment \_\_\_\_  
Specific plan approval \_\_\_\_  
Rezone \_\_\_\_  
Williamson Act Contract cancellation  
Other \_\_\_\_\_ (please specify)  
None required \_\_\_\_

### STATE

**CESA Compliance XXX**

Streambed alteration permit \_\_\_\_  
CWA §401 certification \_\_\_\_  
Coastal development permit \_\_\_\_  
Reclamation Board approval \_\_\_\_  
Notification \_\_\_\_  
**Other- Scientific Collection permit**  
None required \_\_\_\_

### FEDERAL

**ESA Consultation XXX** (NMFS)  
Rivers & Harbors Act permit \_\_\_\_  
CWA §404 permit \_\_\_\_  
Other \_\_\_\_\_ (please specify)  
None required \_\_\_\_

## LAND USE CHECKLIST

All applicants must fill out this Land Use Checklist for their proposal. Applications must contain answers to the following questions to be responsive and to be considered for funding. *Failure to answer these questions and include them with the application will result in the application being considered non-responsive and not considered for funding.*

1. Do the actions in the proposal involve physical changes to the land (i.e. grading, planting vegetation, or breaching levees) or restrictions in land use (i.e. conservation easement or placement of land in a wildlife refuge)? **NO.**
2. If NO to # 1, explain what type of actions are involved in the proposal (i.e., research only, planning only). **The monitoring projects will not involve physical changes to the land.**
3. If YES to # 1, what is the proposed land use change or restriction under the proposal? **NA see # 1.**
4. If YES to # 1, is the land currently under a Williamson Act contract? **NA see # 1.**
5. If YES to # 1, answer the following: current land use, current zoning, current general plan designation: **NA see # 1.**
6. If YES to #1, is the land classified as Prime Farmland, Farmland of Statewide Importance or Unique Farmland on the Department of Conservation Important Farmland Maps? **NA see # 1.**
7. If YES to # 1, how many acres of land will be subject to physical change or land use restrictions under the proposal? **NA see # 1.**
8. If YES to # 1, is the property currently being commercially farmed or grazed? **NA see # 1.**
9. If YES to #8, what are the number of employees/acre, the total number of employees **NA see # 1.**
10. Will the applicant acquire any interest in land under the proposal (fee title or a conservation easement)? **NO,**
11. What entity/organization will hold the interest? **NA see # 1.**
12. If YES to # 10, answer the following total number of acres to be acquired under proposal, number of acres to be acquired in fee, number of acres to be subject to conservation easement. **NA see # 10.**
13. For all proposals involving physical changes to the land or restriction in land use, describe what entity or organization will: manage the property, provide operations and maintenance services, conduct monitoring. **NA see # 10.**
14. For land acquisitions (fee title or easements), will existing water rights be acquired? **NA see # 10.**
15. Does the applicant propose any modifications to the water right or change in the delivery of the water? **NA see # 10.**
16. If YES to # 15, describe. **NA see # 10.**



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Northern Central Valley Fish and Wildlife Office  
10950 Tyler Road  
Red Bluff, California 96080  
Office (530) 527-3043 Fax (530) 529-0292

May 15, 2000

Mr. Irwin Fust  
Chair, Shasta County Board of Supervisors  
1815 Yuba Street, Suite 1  
Redding, California 96001

Dear Mr. Fust:

The U.S. Fish and Wildlife Service is pleased to provide you with copies of four salmon and steelhead monitoring, assessment, and research project proposals we are submitting to the CALFED Bay-Delta Program for **funding** consideration in response to the 2001 Proposal Solicitation Package. The projects that are proposed to be conducted in or near Shasta and Tehama counties are,

1. Battle Creek anadromous salmonid monitoring projects,
2. Clear Creek juvenile salmonid monitoring project,
3. Sacramento River winter chinook salmon carcass survey,
4. Estimating the abundance of Sacramento River juvenile winter chinook salmon with comparisons to adult escapement.

Prior to conducting any monitoring efforts on private lands, written permission from landowners will be obtained: We have already taken steps to contact local landowners, discuss with them our proposed activities, and ask for permission to conduct these studies on their lands.

The information generated from these monitoring efforts are expected to improve our understanding of the ecological and physical processes affecting the salmon **and** steelhead resources of the north state. Through projects such as these, we hope to reduce the scientific uncertainties and recover listed stocks of salmon and steelhead.

Should you require further information, please contact me at (530) 527-3043.

Sincerely,

James G. Smith  
Project Leader

Enclosures



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Northern **Central Valley Fish and Wildlife** Office  
10950 Tyler Road  
Red Bluff, California 96080  
Office (530) 527-3043 Fax (530) 529-0292

May 15,2000

Mr. George Russell  
Chair, Tehama **County** Board of Supervisors  
PO Box 250  
Red Bluff, California 96080

Dear Mr. Russell

The U.S. Fish and Wildlife Service is pleased to provide you with copies of four salmon and steelhead monitoring, assessment, and research project proposals we are submitting to the CALFED Bay-Delta Program for funding consideration in response to the 2001 Proposal Solicitation Package. The projects that are proposed to be conducted in or near Tehama and Shasta counties are,

- 1 Battle Creek anadromous salmonid monitoring projects,
2. Clear Creek juvenile salmonid monitoring project,
3. Sacramento River winter chinook salmon carcass survey,
4. Estimating the abundance of Sacramento River juvenile winter chinook salmon with comparisons to adult escapement.

Prior to conducting any monitoring efforts on private lands, written permission from landowners will be obtained. We have already taken steps to contact local landowners, discuss with them ~~our~~ proposed activities, and ask for permission to conduct these studies on their lands.

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## FISH AND WILDLIFE SERVICE

Northern Central Valley Fish and Wildlife Office

10950 Tyler Road

Red Bluff, California 96080

Office (530) 527-3043 Fax (530) 529-0292

May 15, 2000

Mr. Ron Hill  
Director, Public Works  
1855 Placer Street  
Redding, California 96001

Dear Mr. Hill

The U.S. Fish and Wildlife Service is pleased to provide you with copies of four salmon and steelhead monitoring, assessment, and research project proposals we are submitting to the CALFED Bay-Delta Program for funding consideration in response to the 2001 Proposal Solicitation Package. The projects that **are** proposed to be conducted in or near Shasta and Tehama counties are,

- 1 Battle Creek anadromous salmonid monitoring projects,
2. Clear Creek juvenile salmonid monitoring project,
3. Sacramento River winter chinook salmon carcass survey,
4. Estimating the abundance of Sacramento River juvenile winter chinook salmon with comparisons to adult escapement.

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Sincerely,

James G. Smith  
Project Leader

Enclosures



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## FISH AND WILDLIFE SERVICE

Northern **Central** Valley Fish and Wildlife Office  
10950 Tyler Road  
Red Bluff, California 96080  
Office (530) 527-3043 Fax (530) 529-0292

May 15, 2000

Mr. Michael Warren  
Redding City Manager  
777 Cypress Ave.  
Redding, California 960001

Dear Mr. Warren

The U.S. Fish and Wildlife Service is pleased to provide you with copies of four salmon and steelhead monitoring, assessment, and research project proposals we are submitting to the CALFED Bay-Delta Program for funding consideration in response to the 2001 Proposal Solicitation Package. The projects that are proposed to be conducted in or near the City of Redding;

1. Sacramento River winter chinook salmon carcass survey,
2. Battle Creek anadromous salmonid monitoring projects,
3. Clear Creek juvenile salmonid monitoring project,
4. Estimating the abundance of Sacramento River juvenile winter chinook salmon with comparisons to adult escapement.

Prior to conducting any monitoring efforts on private lands, written permission from landowners will be obtained. We have already taken steps to contact local landowners, discuss with them our proposed activities, and ask for permission to conduct these studies on their lands.

The information generated from these monitoring efforts are expected to improve our understanding of the ecological and physical processes affecting the salmon and steelhead resources of the north state. Through projects such as these, we hope to reduce the scientific uncertainties and recover listed stocks of salmon and steelhead;

Should you require further information, please contact me at (530) 527-3043.

Sincerely,

James G. Smith  
Project Leader

Enclosures